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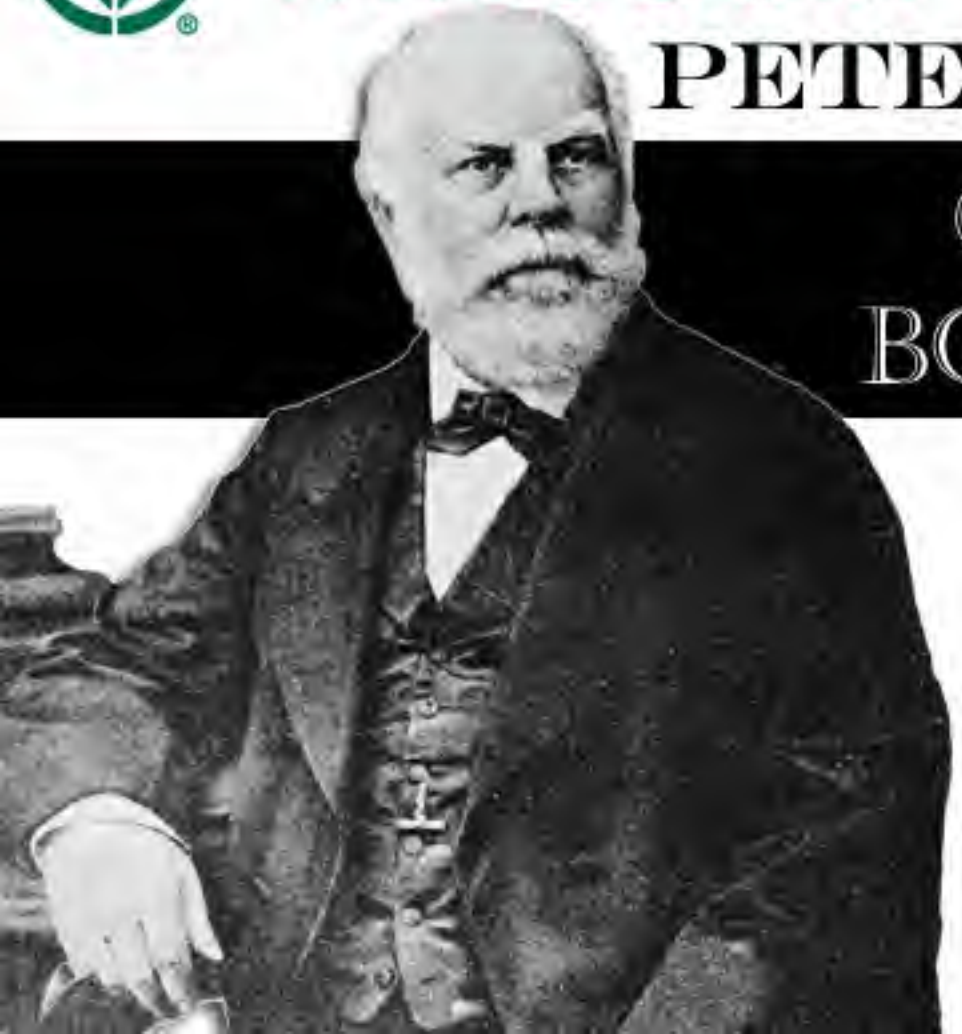
George Engelmann Botanical Notebooks



Pagination Note:
Since many of the items lack a specific page number, the page number displayed online refers to the sequentially created number each item was given upon cataloging the materials.

Bactra
Indian Territory G.D Butler Jun 1875

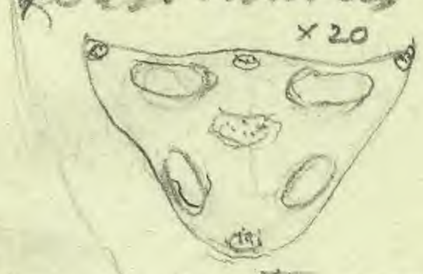
July 9 '1875

a mistake?
12 - 30 long
5 - 10 " long

microspines $\frac{13-14}{415}$ Mm papillae
0,031 - 0,034 mm

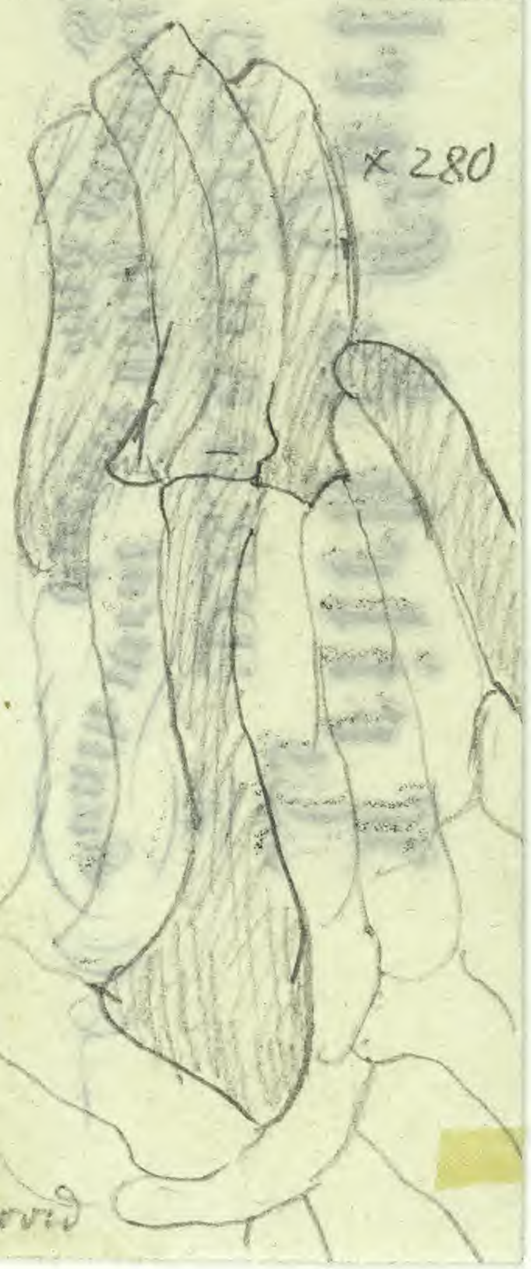
Spores $\frac{30-38}{60}$, mostly $\frac{33}{00}$ mm
= 0.30 - 0.63, mostly 0.33 mm

×60



Stomata
& bristles
×20

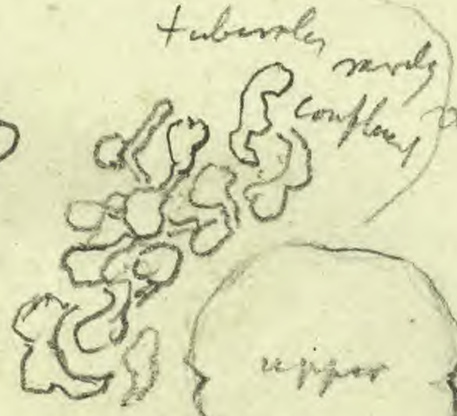
cavities very small



×280

×150

ridge also tuberculate



tubercles rarely confluent

×2

velum angustissimum
s. submarginem

×2

upper

lower

horizontal sections of trunk almost globose, very slightly grooved

13845

Leitch & Corlies

DRUGGISTS

South-west Corner Fifth and Market Streets

cm 0 1 2 3 4 5 6 7 8 9 10
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diam of spores ×60

Isoetes

April 29 1872

Hoosic Tunn, wet places in woods, scarcely in water

E Hall April 1872

$\frac{19-20\frac{1}{2}}{60} = 0{,}317 - 0.34$ mean 0.33 mm

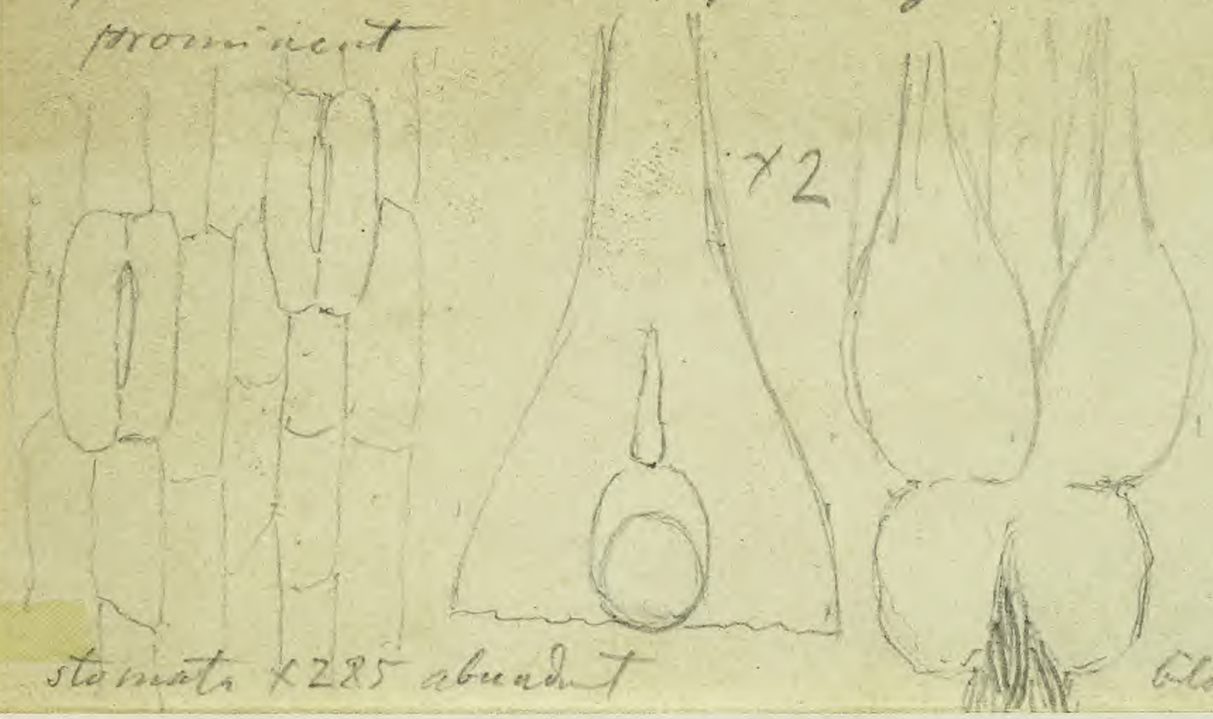
Spores incrustations

both sides of spores with irregular angular or twisted low protuberances. Ridges very prominent

30 cent = 1 foot high

cells of sporangium ×285

closely allied, scarcely different from T. melanopoda, villum wider



×2

stomata ×285 abundant

Globose trunk

6 cells thick

×20

6-7 cells thick

8-9 cells thick

4 regular and several additional bast bundles

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Deutsche Apotheke.

HENRY DIERS,

APOTHECARY,

South East Corner Fifth and Tiddle Streets,

ST. LOUIS. MO.

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Isoetes melanopoda

May 6 1872

Hempstead County, Texas

E Hall

spores $\frac{20-22 \text{ mm}}{60}$

$= 0.33 - 0.37$ mm

spores almost smooth

× 2

× 20

4 rows

3 rows

4 rows

large spores

3 rows of cells

= stomata

× 20

small flat leaved specimen

× 2

1

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13847

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acute but rounded, but above all by the existence of a central lammella or plate which separates the opposite and less flattened portions of the bryozoum.

Geol. Pos. & Loc.—Upper Silurian, Columbus, Ohio.—[*Illinois State Collection.*]

Missouri Botanical Garden
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cm 0 1 2 3 4 5 6 7 8 9 10

city.

TEMPERATURE.

YEAR.	JAN.	FEB.	MAR.	APRIL	MAY.	JUNE.	JULY.	AUG.	SEPT.	OCT.	NOV.	DEC.	MEAN OF YEAR.
1861...	32.2	40.4	44.8	58.1	64.1	76.9	77.5	78.6	69.1	57.9	46.0	39.7	57.1
1862...	28.9	30.2	43.2	55.0	69.7	75.1	81.2	80.7	72.1	57.3	42.6	41.3	56.4
1863...	36.8	35.7	43.6	57.4	65.5	71.9	77.2	77.5	69.2	48.0	43.7	35.9	55.2
1864...	29.2	38.3	40.7	51.4	69.4	78.9	83.5	78.8	72.9	53.1	44.9	30.4	56.0
1865...	28.1	38.4	46.7	56.8	68.8	80.7	77.7	78.1	77.8	58.8	48.0	30.8	57.5
Mean	31.0	36.6	43.8	55.7	67.5	76.7	79.4	78.7	72.2	57.0	45.0	35.6	56.4

RELATIVE HUMIDITY.

1861...	72.2	63.3	64.5	61.5	66.3	70.8	66.3	69.6	77.3	76.6	69.0	74.3	69.5
1862...	85.3	73.9	70.8	67.0	57.3	67.0	66.8	64.3	74.2	67.2	69.5	74.6	69.8
1863...	79.2	81.7	68.1	57.2	59.4	67.7	68.6	70.7	68.2	74.4	67.4	79.5	70.2
1864...	75.6	62.7	70.0	69.8	56.4	61.5	62.8	69.0	64.1	67.9	74.2	75.5	67.4
1865...	74.6	72.0	66.1	66.8	62.1	67.9	77.4	71.7	76.8	74.1	62.3	78.8	70.9
Mean	77.4	70.7	67.9	64.5	60.3	67.0	68.4	69.1	72.1	72.0	68.5	76.5	69.6

Meteorology 0.35

Thunder 1861 - 0.27 - 0.38
1863 - 0.32 - 0.38
0.30 - 0.26

Meteorology 0.025

Thunder 1861 0.027 - 0.028
1865 - 0.022 - 0.024
0.023 - 0.025

13848

150-7

cm 0 1 2 3 4 5 6 7 8 9 10
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Dec 16 1863

Spores

E. Hall, Athens, Ill.

×60 dia

Spore of one of the large specimens ridges indistinct – mealy coating mostly broken off or rubbed off

0.022 – 0.024 mm

Dry spores ×415

of the largest specimens which contained only these – no immature spores about

$19\frac{1}{2} - 22\frac{1}{2}$ lin m = 0.32 – 0.38

$\frac{9\frac{1}{2} - 11 \text{ lin}}{60} = 0.16 - 0.18$ m

×60

Spores of the smallest specimen, very variable in size – ridges strong, marked – very distinct wrinkles or warts

A. Specimen collected in dry soil Jan 1st 1865 has spores 0.33 – 0.38 mm, well formed.

$\frac{16 - 23 \text{ mm}}{60} = 0.27 - 0.38$ lin m

$\frac{8 - 11 \text{ lin}}{60} = 0.13 - 0.18$ m

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APOTHECARY & PHARMACEUTIST,

Marble Building Cor. Fourth & Olive Sts. St. Louis, Mo.

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X10

Sect of leaf of
young Isoetes
melanopoda
Aug 2d 1866

X280

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cm
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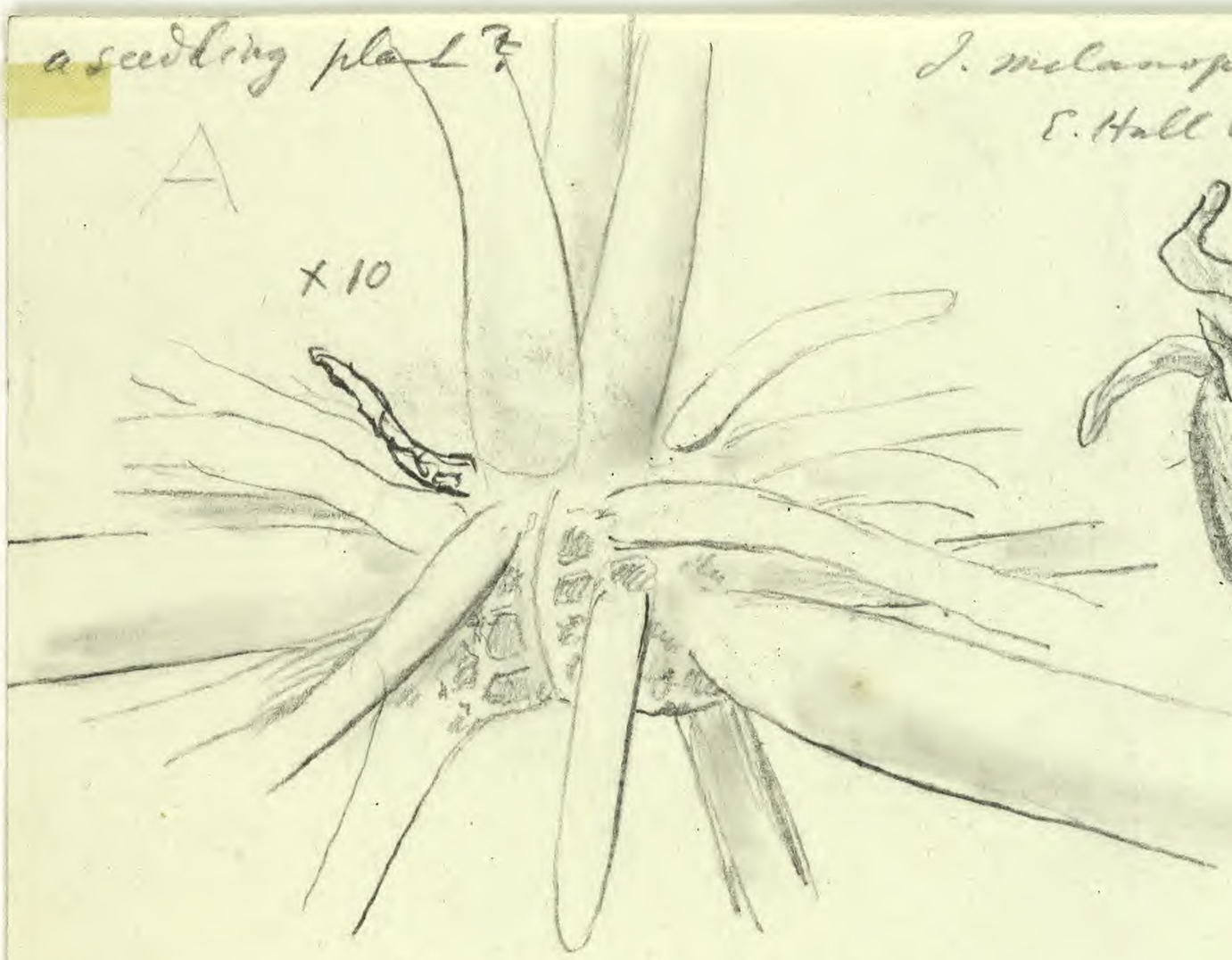
a seedling plant ♀

A

×10



very young sterile plant. ×10

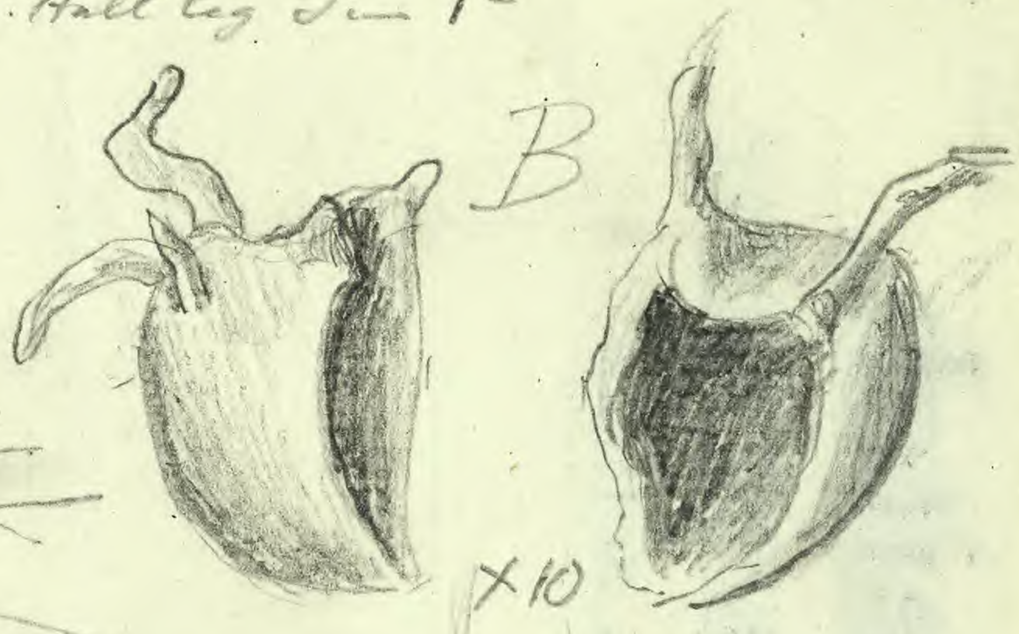
apparently fresh roots from all parts of the bulb of very different dimensions. Two very thick ones from both sides of the slightly bilobed Tuber. Tuber spotted, as if the epidermis had cracked by the growth of the mass

L. melanopoda

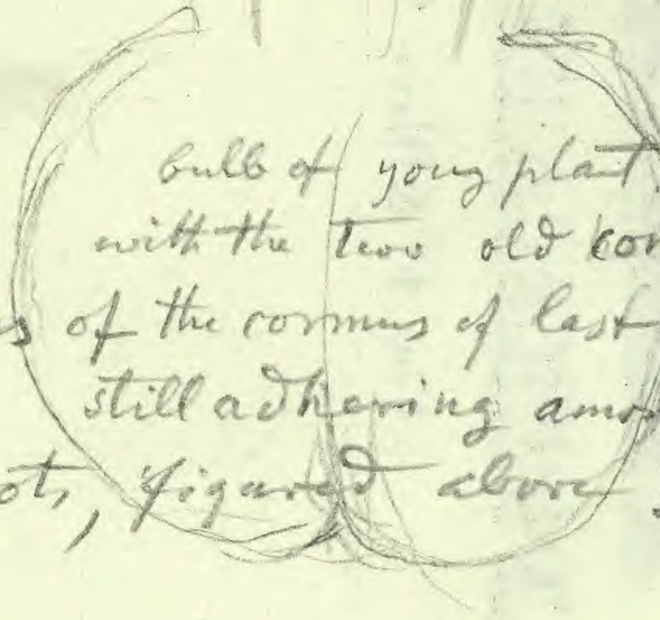
E. Hall leg June 1st

June 3d 1866

B



×10



bulb of young plant with the two old concave halves of the corms of last year still adhering among the root, figured above separate

Cy

13851

Alex. Leitch,

APOTHECARY & CHEMIST,

Cor. 4th & Olive Sts., St. Louis.

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June 3d 1866

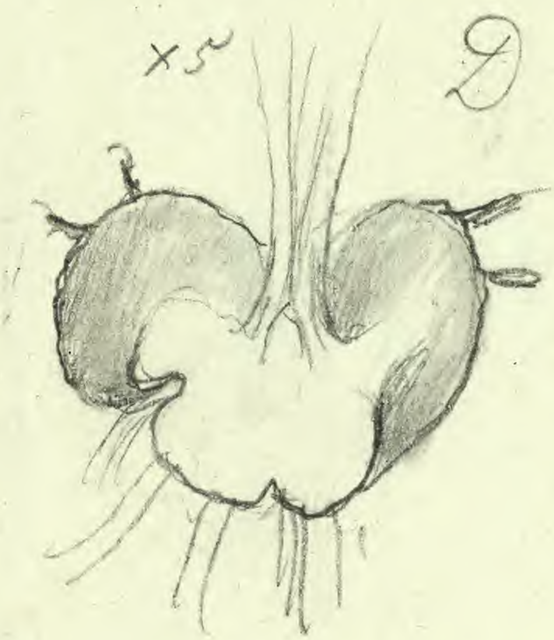
D. melanopoda
E. Hall. Jun 1st

C

×5

sect of yg sterile plant — old halves of tuber decaying, brown but still attached to upper part of white tuber (of this year?)

×5 D



sect of small sterile plant old part of tuber not yet completely separated line of demarcation indistinct in places.

both specimens sent to Gray

13852

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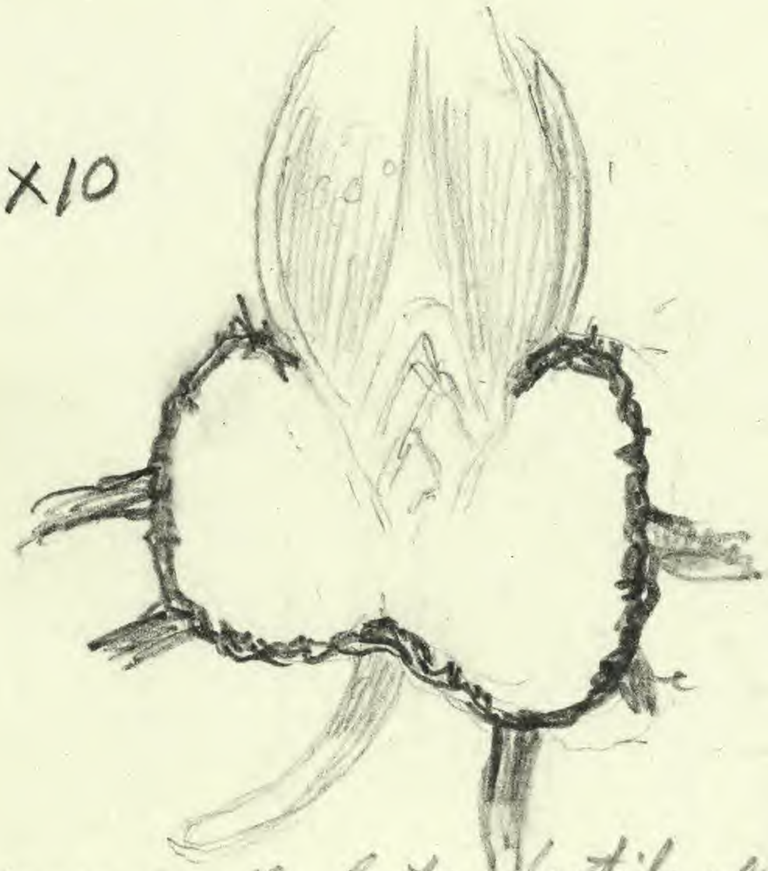
Isoetes melanopoda
E. Hall leg. June 1st

June 3 1866

X10



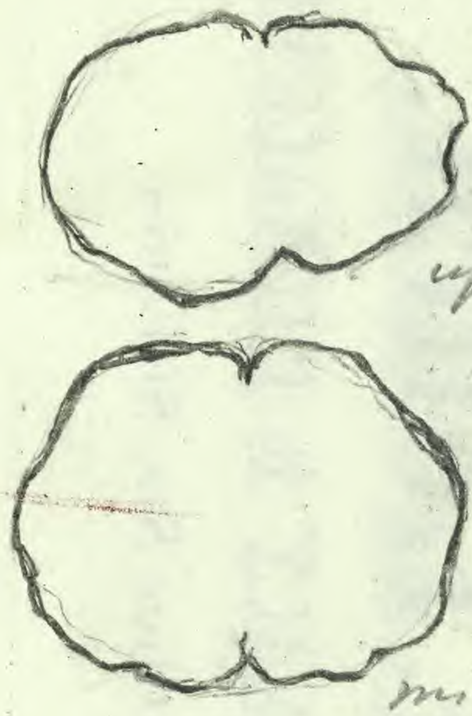
Very small, but fertile plant only 3 mm in largest diam outer part (scar rather than epidermis) too thick in figure

the largest specimen of those sent to Braun

X10

epidermis much thinner – sterile plant also sent to Braun

X10



upper

middle

lower

Cross sections of a very small bulb sterile

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cm
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T. melanopoda
E Hall Jun 1st

June 4 1866

number of leaves in larger specimens before me 20-30

Sect of leaf X10

Largest leaf seen X10

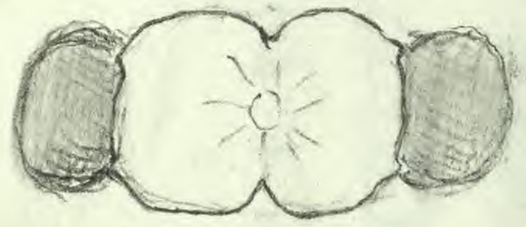
×2

section of same

abt 25 leaves, 8–10 inches long

sect. of another Tuber X2

separation not yet complete



horizontal section of another bulb ×2

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cm
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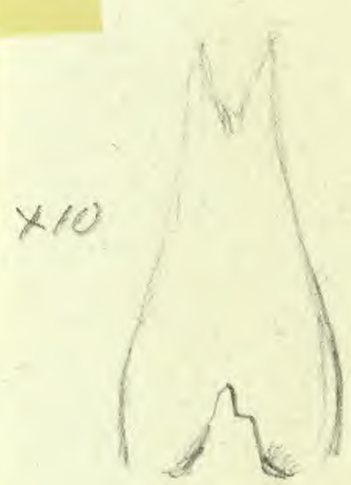
Boeckeria umbrosa 2-5-1866

not
ligula always
2 lobed

×10



very young

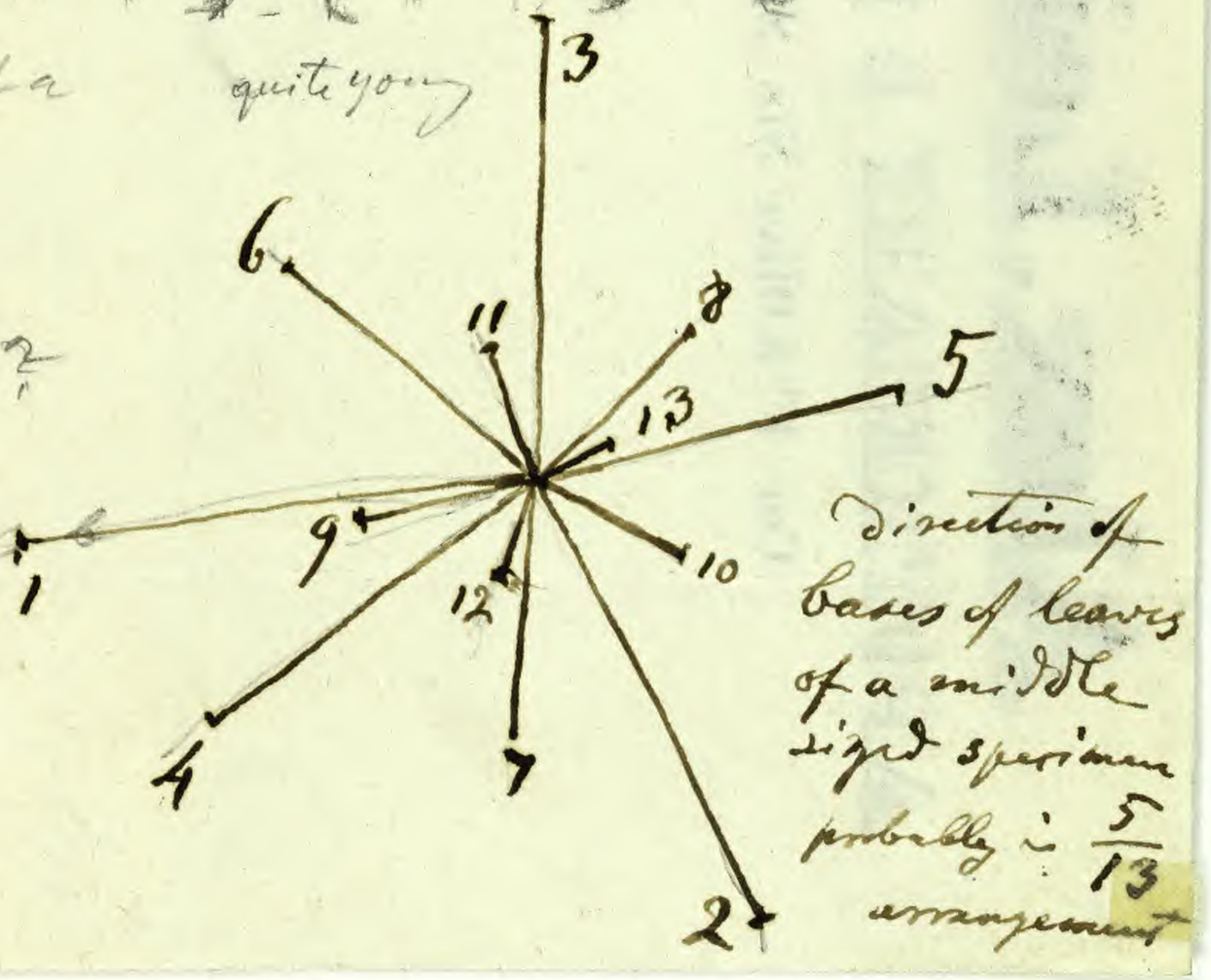
×10

after removal of a

two blunt points (styles) protruding towards the opening b. above

×10

quite young



Direction of bases of leaves of a middle sized specimen probably = 5/13 arrangement

13855

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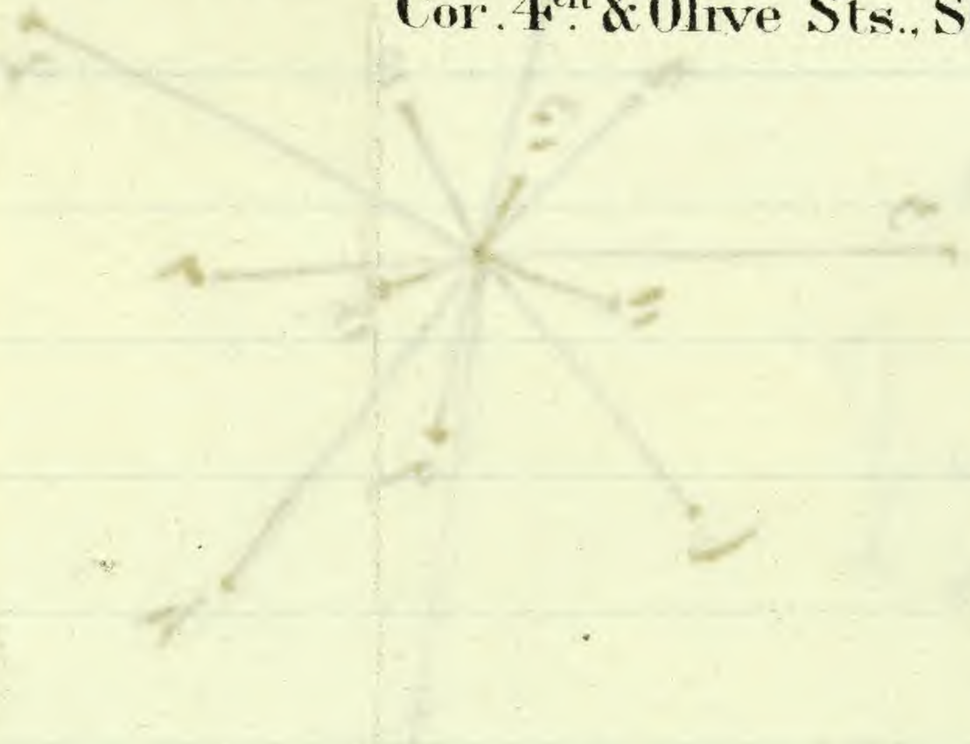
APOTHECARY & CHEMIST,

Cor. 4th & Olive Sts., St. Louis.



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Isoetes melanopoda Gell

July 27 1865

Sporangium, membrane of the inner surface - Two layers of cells -
1, narrow, elongated cells, many of them brown, forming the outer layer
2, larger, wider transparent cells forming the inner lining
both easily distinguished by the difference in the colors.

mags 415

The Epidermis of base of leaves of same texture with elongated brown cells, only darker, and all walls very dark and no colourless cells between them

Spors 0,33 mm

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P. melanospora

Aug 11 1878

Ringwood, Victoria

microspores slightly rough

$\frac{10.5 - 11.5}{4.15} = 0.025 - 0.028$ mm

×60

macrospore

$\frac{20 - 24}{60} = 0.33 - 0.40$ mm

×2

macrosp. & two microsp.

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13857

HOELKE BROS.,

APOTHECARIES AND CHEMISTS,

S. W. Cor. Sixth & Market Sts.,

ST LOUIS, MO.

0 1 2 3 4 5 6 7 8 9 10 cm
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Isoetes melanopode

"Leaves 4 to 18 inches"

Hall

St. Vrain Co. 1 ; Clinton Co. 1862

and ; Ridgewood Ill 1863

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APOTHECARY & PHARMACEUTIST

COR. 4TH & OLIVE STS. ST. LOUIS

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Isoetes melanopoda

E Hall writes July 29 '77.

No Isoetes this year! seems to appear only in peculiarly favorable seasons. This year was very wet, but no plants! More in other seasons I found plenty.

A dozen dried sp. were found completely dissected — but I believe I have often seen monoecious plants,

13859

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Isoetes melanopoda

" I discovered this plant in 1853 when making Brick I was struck with the bulbs with their matured spors. Such were denuded by the operation. Having often looked for I. Engelmanni I at once took it for that plant and distributed it under that name. Dr Vasey collected it at Ringwood in 1863

E. Hall — Ill. Octo 14 1866

Dr Geo Vasey collected it June 26 1862 at Clinton Iowa and in the next years at Ringwood, Illinois

13860

M. KOVÁCS,

-APOTHECARY-

Franklin Avenue, bet. 18th & 19th Streets,

ST. LOUIS, MO.

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Rec Feb 11

Isoetes melanopoda

Athens Ill. Feb 9th 1880,

Dear Engelman — Your card rec'd

My health is probably some better

but the secretions & cough still continues

The associates of Isoetes melanopoda

are rather numerous

Nartecium sessiliflorum Hypericum mutilum

Elatine Americana (or probably new different fide

Gray) Penthorum sedoides. Epilobium angustifoli

Ludwigia Sphaerocarpa Ammannia humilis

A. latifolia Lythrum alatum Gratiola

Virginiana Glyceanthes gratioloides

Callitriche heterophylla. Potamogeton

hybridus Alisma Plantago Juncus

brachycarpus Cyperus diandrus

C acuminatus. Eleocharis Engelmanii

E. Polentis. E. tenuis E. aciculoris

E. obtusa. Alopecurus geniculatus

Agrostis scabra Glyceria nervata

Equisetum arvense. Strictly natural

13861

associates – besides numerous others
that inhabit similar localities & the
same localities under certain
conditions as Indian Corn the
prostrate Euphorbias & various
weeds in cultivated grounds &c &c
Ricias occur the hepaticae order
Aphanorhegma serrata By our
agentum be in Mosses
Hope to be favored with your
investigations on the order when
printed

Your friend
Elihu Hall

The Texas Var. of melanopodea
affects low places in pine woods
sometimes without associates
of any kind but often
in open places with other plants
where shallow water abounds

0 1 2 3 4 5 6 7 8 9 10
cm
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Rec July 19
An — 20

Limestone Gap. Ind. Ter.
July 17th 1875.

Dr. Geo. Engelmann:-
Dear Sir.

I have received yours of July 12th. I am under obligations to you for the valuable information it contained.

The last time I saw the lesser Isoetes growing was about the 20th of June. At that time it looked fresh and lively enough. From that time until yesterday I had not noticed it with the exception of a few plants about July 1st which I observed in a watermelon patch, planted in a piece of new ground. There were also growing. At this date they are all dried up and the leaves have almost decayed. I believe I understand how this species succeeds in scattering the spores. It grows in a sort of hard pan soil, which comes to the surface in considerable areas throughout this section of the county. It is very stiff and not easily washed or disturbed. I think it is very strongly alkaline. so that I call them places Alkaline flats. During the summer season the soil is very hard. so that it is cut with a knife with difficulty. Now when the leaves of this Isoetes decay, which they do very quickly and completely, they leave a hole in the ground which from the nature of the soil remains there until the Autumnal rains fill them, when the spores float out (for they will float very freely), These tracts owing to the evenness of their surface are rather wet during the wet season, but a loaded wagon is perfectly secure from mining upon them at any time.

0 1 2 3 4 5 6 7 8 9 10
cm
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I send you to-day a box containing a considerable quantity of the bases of leaves, spons, and root stocks. The root stocks (perennial?) will probably grow for they seem upon cutting open to contain plenty of nutriment in good condition. Some plants contain only fine spons, a very fine powder. After I had found one of the plants yesterday, it was easy enough to find the rest, although I was well nigh discouraged upon finding the first one. The little holes or cavs in the ground needed only to be looked for. - Sig and there is the root. It can not be said to grow in patches, but is thicker in some places than others. I shall send you a package in 2 or 3 days which shall contain all the specimens of the species I have except in herb.

In order to find this plant when green it is necessary to search with great care, the color (dark deep green) will serve to distinguish it casually from Tinantia erecta growing with it. It must be looked for upon hands and knees.

In the box is some of the earth in which the plant grows, A qualitative analysis would be of much interest. It speaks the occurrence of many plants. Often during spring it is covered with an incrustation of nitre? That this substance is used by wild animals as a substitute for salt is probable from the number of "licks" occuring in these places. The water of wells dug in them can scarcely be used by one not accustomed to - it.

I will write again in a few days, as I must say something about those Callirhoes. Normally 2. species (Some mistake) and the Monarda (Certainly not M. Bradburiana).

Very respectfully,

Geo. D. Butler,

13862

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